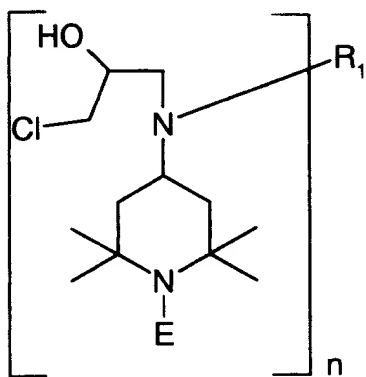
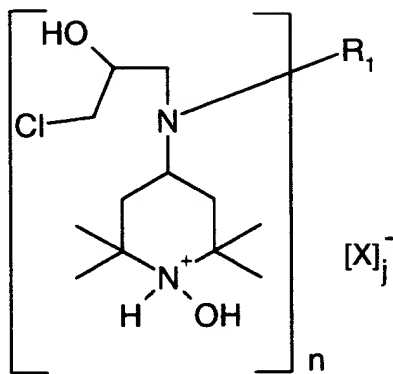


WHAT IS CLAIMED IS:

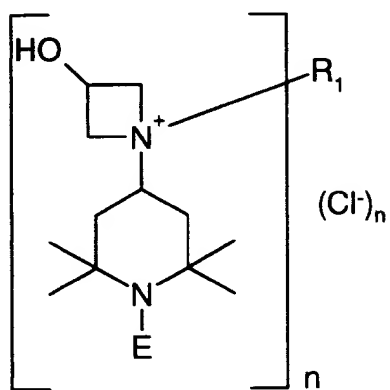
1. A compound of any of formulas I to X, or IA to XA



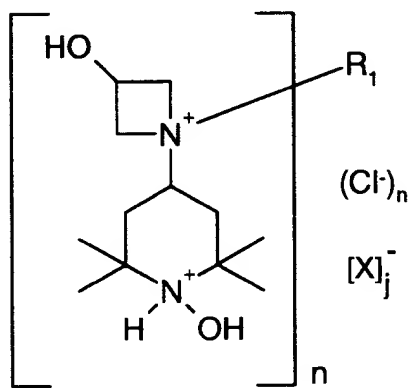
I



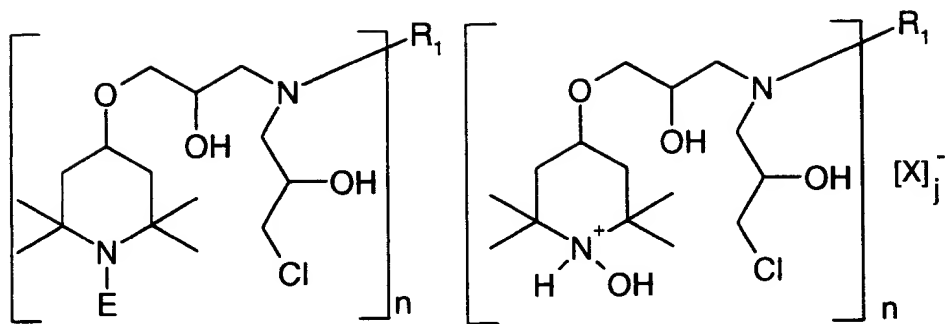
IA



II

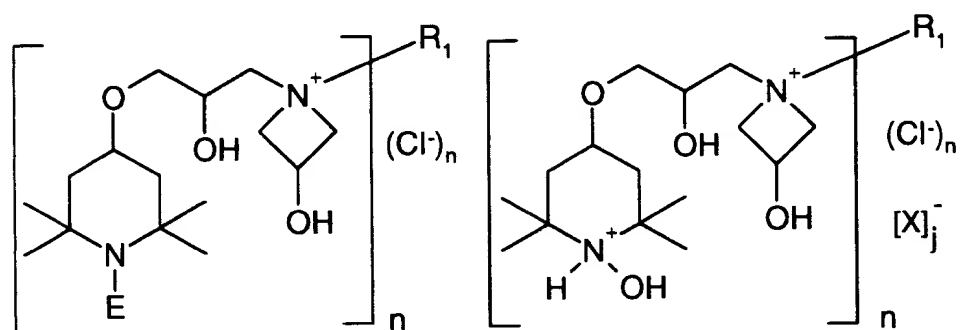


IIA



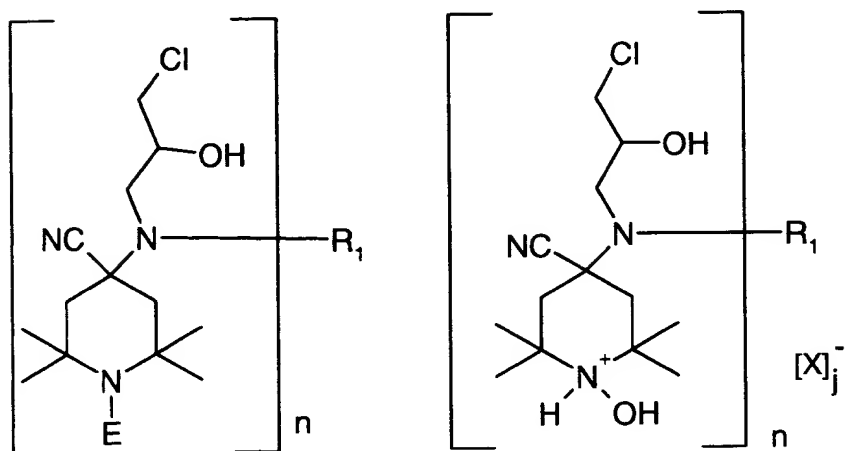
III

IIIA



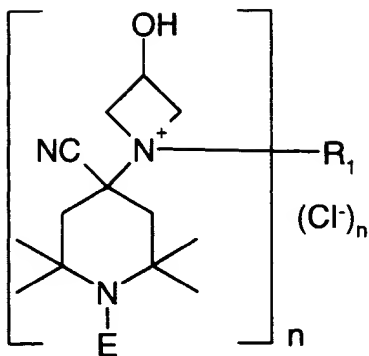
IV

IVA

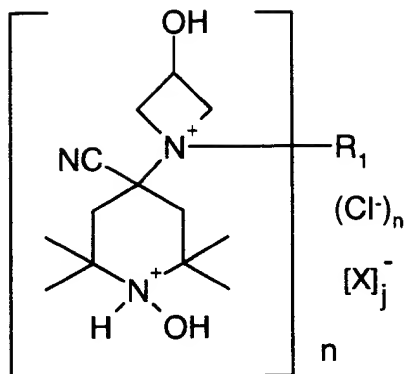


V

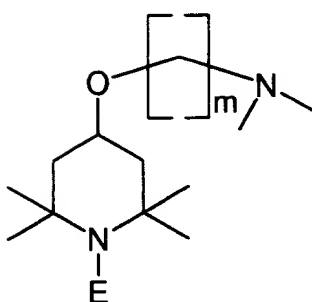
VA



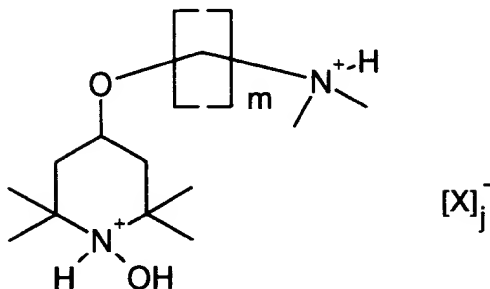
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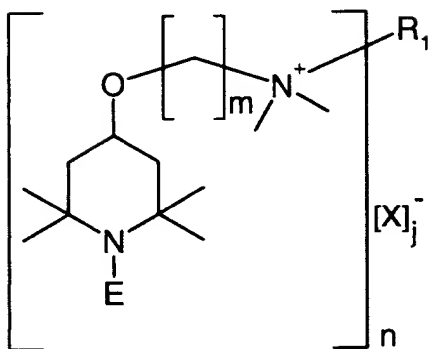
VIA



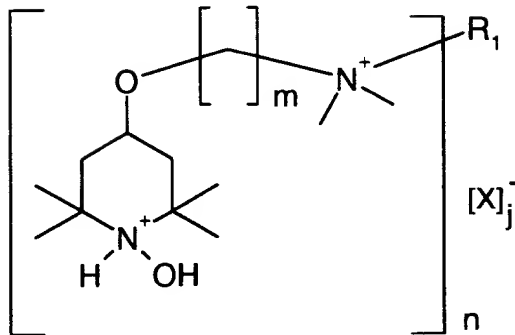
VII



VIIA



VIII

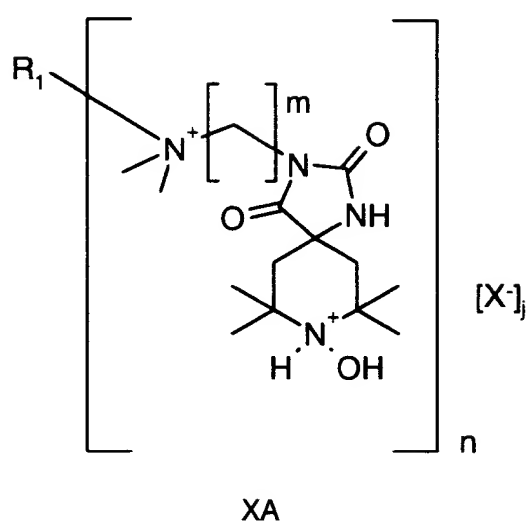
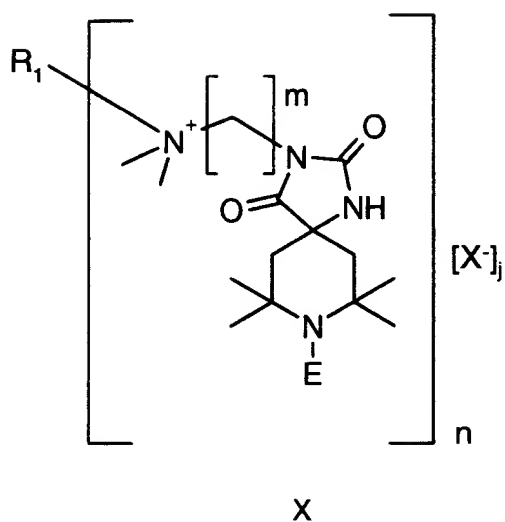
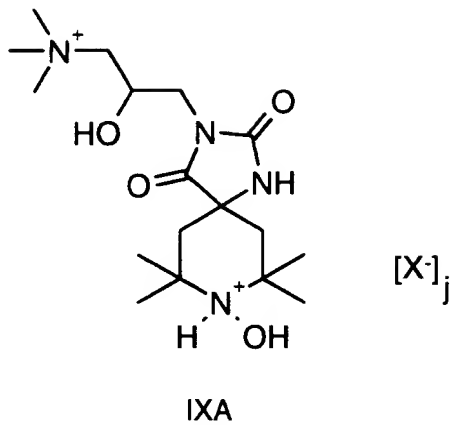
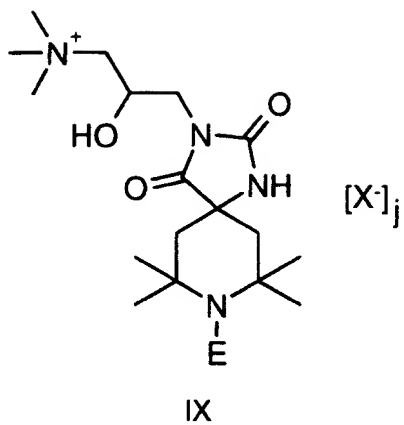


VIIIA

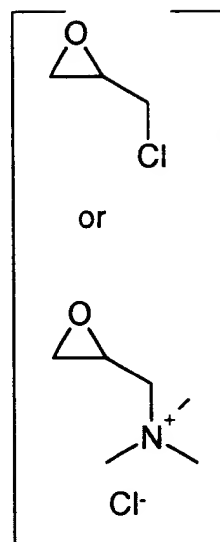
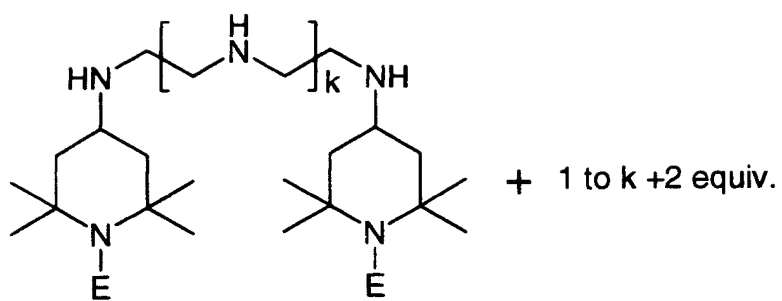
54 p. 30

N, N, N', N'-Tetramethyl-*N, N'*-bis-
C3-(1-oxo)-2,2,6,6-tetra-
pyrrolidone

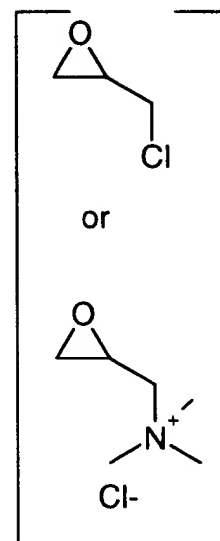
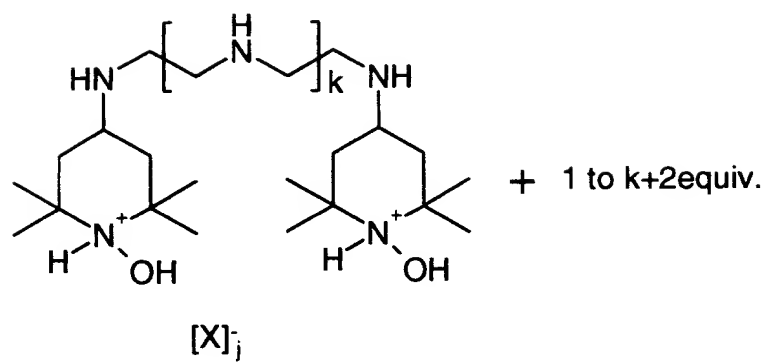
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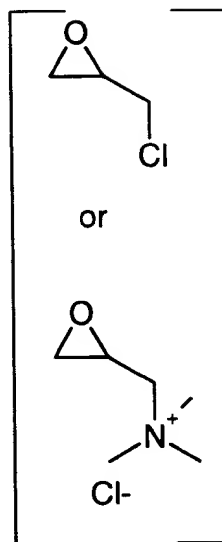
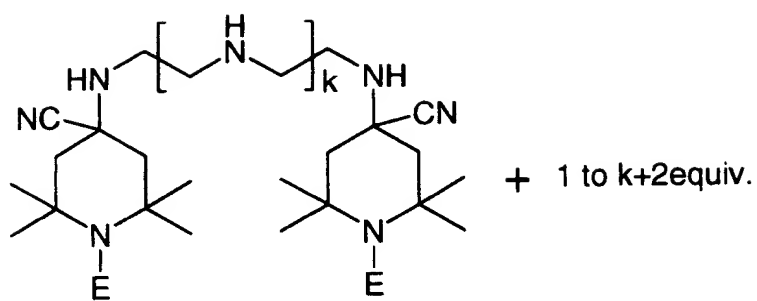
or a product of one of the following reactions XI to XVI or XIA to XVI



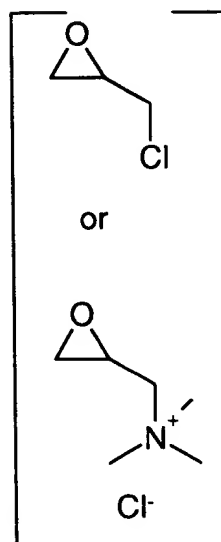
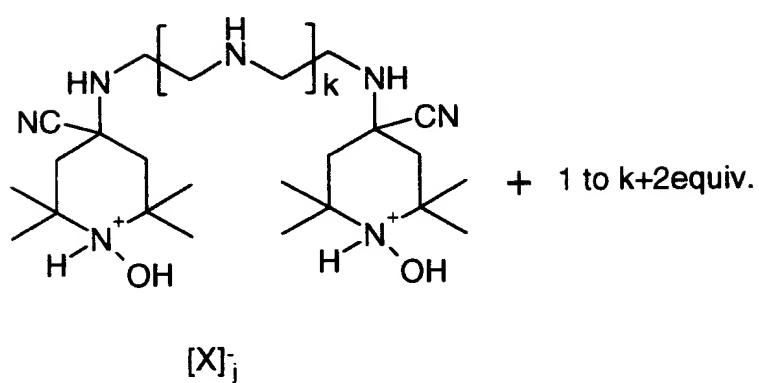
XI



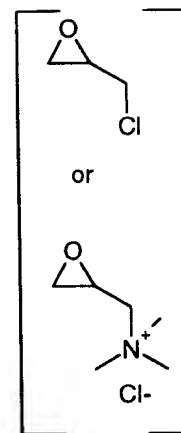
XIA



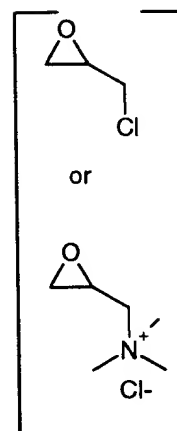
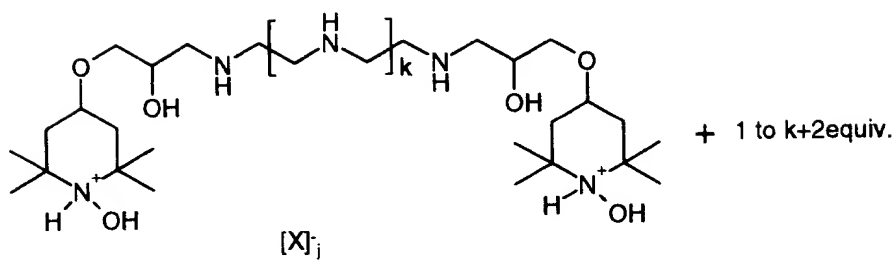
XII

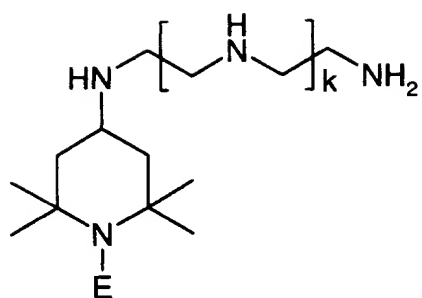


XIIA

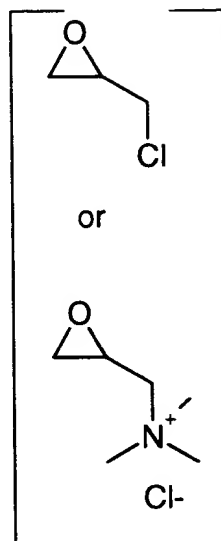


XIIIA

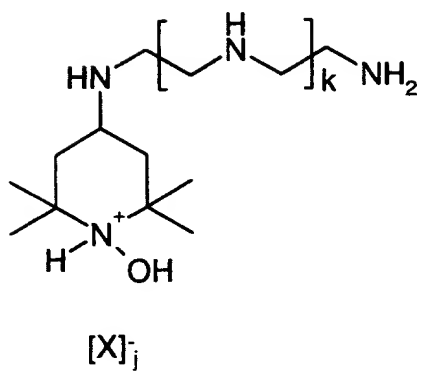




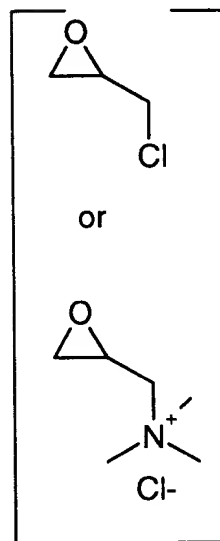
+ 1 to k+2equiv.



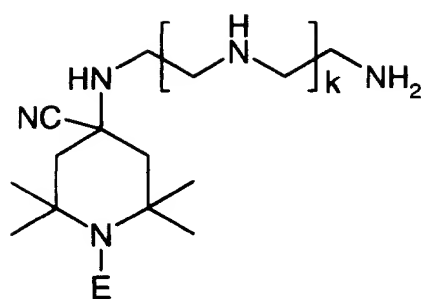
XIV



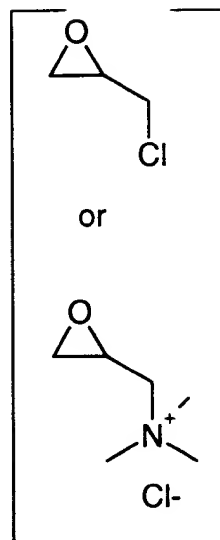
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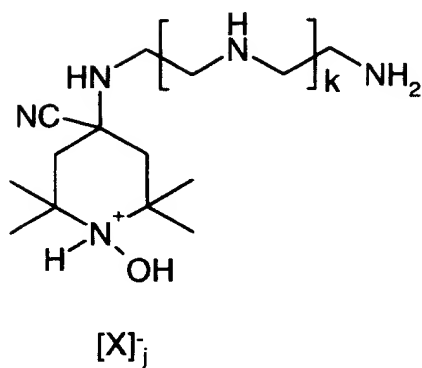
XIVA



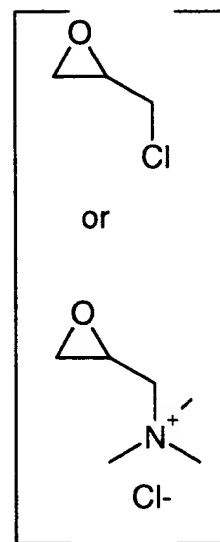
+ 1 to k+2equiv.



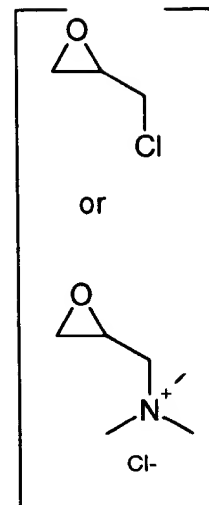
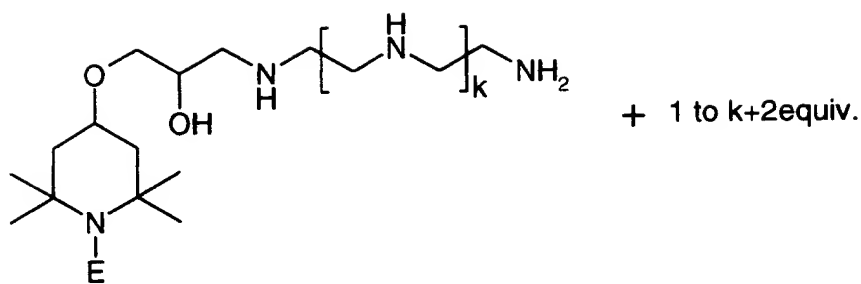
XV



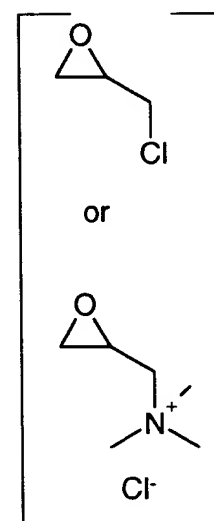
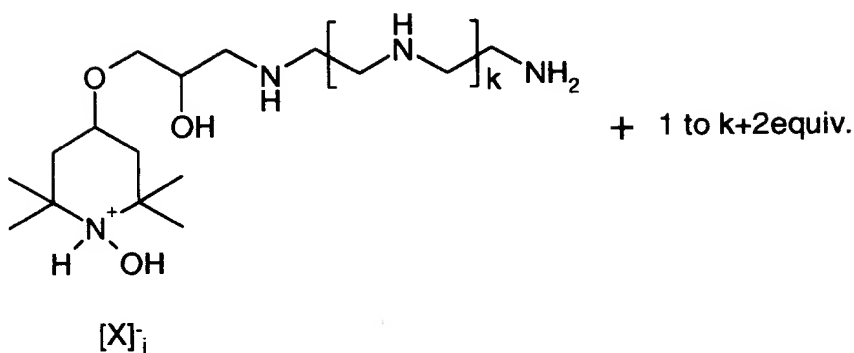
+ 1 to k+2equiv.



XVA



XVI



XVIA

where

k ranges from 1 to 10; n is 1 or 2; and m ranges from 2 to 6;

E is oxyl, hydroxyl, hydrogen, alkyl, alkyl substituted by hydroxyl, by oxo or by carboxy, alkyl interrupted by oxygen, by -COO- or by -OCO-, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, bicycloalkyl, alkoxy, alkoxy substituted by hydroxyl, by oxo or by carboxy, alkoxy interrupted by

oxygen, by -COO- or by -OCO-, cycloalkoxy, alkenyloxy, cycloalkenyloxy, aralkyl, aralkoxy, acyl, RCOO-, ROCOO-, RNCOO- or chloro where R is an aliphatic or aromatic moiety,

when n is 1,

R₁ is hydrogen, alkyl of 1 to 18 carbon atoms, alkenyl of 2 to 18 carbon atoms, propargyl, glycidyl, alkyl of 2 to 50 carbon atoms interrupted by one to twenty oxygen atoms, alkyl of 2 to 50 carbon atoms substituted by one to ten hydroxyl groups or both interrupted by said oxygen atoms and substituted by said hydroxyl groups, or

R₁ is alkyl of 1 to 4 carbon atoms substituted by a carboxy group or by -COOZ where Z is hydrogen, alkyl of 1 to 4 carbon atoms or phenyl, or where Z is said alkyl substituted by - (COO⁻)_nMⁿ⁺ where n is 1-3 and M is a metal ion from the 1st, 2nd or 3rd group of the periodic table or is Zn, Cu, Ni or Co, or M is a group Nⁿ⁺(R₂)₄ where R₂ is hydrogen, alkyl of 1 to 8 carbon atoms or benzyl, or

when n is 2,

R₁ is alkylene of 1 to 12 carbon atoms, alkenylene of 4 to 12 carbon atoms, xylylene or alkylene of 1 to 50 carbon atoms interrupted by one to twenty oxygen atoms, substituted by one to ten hydroxyl groups or both interrupted by said oxygen atoms and substituted by said hydroxyl groups,

X is an inorganic or organic anion, where the index j in formulae I to VIA equals n divided by the valency of X, and in formulae VIIA to XVIA equals the number of ammonium ions in the formula divided by the valency of X; and

the total charge of cations is equal to the total charge of anions.

2. A compound according to claim 1 wherein the anion X is phosphate, phosphonate, carbonate, bicarbonate, nitrate, chloride, bromide, iodide bisulfite, sulfite, bisulfate, sulfate, borate, formate, acetate, benzoate, citrate, oxalate, tartrate, acrylate, polyacrylate, fumarate, maleate, itaconate, glycolate, gluconate, malate, mandelate, tiglate, ascorbate,

polymethacrylate, a carboxylate of nitrilotriacetic acid, hydroxyethylethylenediaminetriacetic acid, ethylenediaminetetraacetic acid or of diethylenetriaminepentaacetic acid, a diethylenediaminetetraacetic acid or of diethylenetriaminepentaacetic acid, an alkylsulfonate or an arylsulfonate.

3. A compound according to claim 1 wherein E is selected from oxyl, hydroxyl, C₁-C₁₈alkoxy; C₃-C₁₈alkoxy substituted by hydroxyl, oxo or carboxy or interrupted by oxygen or carboxy; C₅-C₁₂cycloalkoxy; C₃-C₁₂alkenyloxy; cyclohexenyloxy; aralkyl or aralkoxy of 7 to 15 carbon atoms; C₁-C₁₂acyl; R(C=O)O-, RO(C=O)O-, RN(C=O)O-, where R is C₁-C₁₈alkyl, phenyl, C₇-C₁₅phenylalkyl, cyclohexyl, C₂-C₃alkenyl.

4. A compound according to claim 1 of formula I, IA, II, IIA, IV, IVA, VII, VIIA, VIII, VIIIA, IX, IXA, or the reaction product XI or XIA.

5. A compound according to claim 4, wherein

k is 1 or 2; m is 2 or 3;

E is oxyl, hydroxyl, or C₁-C₈alkyl;

R₁, when n is 1, is H or C₁-C₈alkyl, or, when n is 2, is alkylene of 2-12 carbon atoms; and

X is chloride, bromide or citrate.

6. A process for preventing the loss of brightness and for enhancing resistance to yellowing of a pulp or paper, which comprises

treating said pulp or paper with an effective stabilizing amount of a compound of any of formula I to X or IA to XA or a product as defined in any of formula XI to XVI or XIA to XVIA according to claim 1.

7. A process according to claim 6 wherein the effective stabilizing amount of the compound of claim 1 is 0.001 to 5% by weight based on the pulp or paper.

8. A process according to claim 6 wherein the pulp or paper is additionally treated with an effective stabilizing amount of at least one coadditive selected from the group consisting of the UV absorbers, the polymeric inhibitors, the sulfur containing inhibitors, the phosphorus containing compounds, the nitrones, the benzofuran-2-ones, fluorescent whitening agents,

hindered amine hydroxylamines and salts thereof, hindered amine nitroxides and salts thereof, hindered amines and salts thereof, benzofuran-2-ones and metal chelating agents.

9. A process according to claim 8 wherein the coadditive is selected from the group consisting of UV absorbers selected from the benzotriazoles, the s-triazines, or the benzophenones; polymeric inhibitors; sulfur containing inhibitors; phosphorus containing compounds; benzofuran-2-ones; and metal chelating agents; and the amount of coadditive is 0.001 to 5% by weight based on the pulp or paper.

10. A process according to claim 6 for preventing the loss of brightness and for enhancing resistance to yellowing of a chemimechanical or thermomechanical pulp or paper which still contain lignin.

11. A process according to claim 6 for preventing the loss of brightness and for enhancing resistance to yellowing of a chemimechanical or thermomechanical pulp or paper which still contain lignin.